APPENDIX A

least frequently used *Computer Programming.* an algorithm used by operating systems for memory management, in which a block of data that requires memory replaces the memory block that has been accessed least often.

least recently used *Computer Programming.* an algorithm used for memory management in which a block of data that requires memory replaces the memory block that has not been accessed for the longest time.

least significant *Computer Programming.* referring to the bit, character, or digit in the rightmost position of a word or number, the position of least importance or weight. Thus, **least significant bit**, **least significant character**.

least-squares method *Statistics.* a method of model parameter estimation that selects as a best estimate one that minimizes the sum of the squares of deviations of the data points from the values predicted based on the model. *Crystallography.* the use of this method in crystal structure analyses, in which atomic coordinates and other parameters may be fitted to the observed intensities; ideally, there should be at least 10 measurements for each parameter to be determined. In a similar way, the least-squares criterion can be applied to the computation of a plane through a group of atoms.

least upper bound *Mathematics.* a least upper bound (if it exists) for a subset B of a partially ordered set A (with ordering $\leq$) is an element s of A such that: (a) s is an upper bound of B, and (b) $s \leq c$, where c is any other upper bound of B.

least-work theory *Mechanics.* a theory stating that when forces are applied to an elastic system, the deflections of its parts are distributed so as to minimize the total work done by the forces.

leather *Materials.* 1. a dressed animal skin, cured by the action of tannins or other processes to make it soft and flexible; widely used since ancient times for shoes, belts, gloves, outer clothing, and many other items. Hides from cattle are the most widely used source; others include sheep, pigs, sharks, and reptiles. **2.** relating to, containing, or made from this material.

leather rot *Plant Pathology.* a disease of strawberries caused by the fungus *Phytophthora cactorum* and characterized by a hardening and decay of the berries.

leathery cure *Materials.* an overcured state of vulcanized rubber in which the mixture is stiffer, harder, and less extendable than at optimal cure.

leathery state *Materials.* in the heating of polymers, a state in the glass transition temperature range in which the mechanical behavior of the polymer becomes sluggish; the polymer can be extensively deformed but will slowly return to its original state when the stress is removed.

leaving group *Organic Chemistry.* any group that can be displaced from a carbon atom.

lebek *Botany.* **1.** the tropical tree *Albizzia lebbeck* of the legume family, having pinnate leaves and greenish-yellow flowers; found in Asia and Australia. **2.** the durable wood of this tree used in building construction.

lebensspur see TRACE FOSSIL.

Lebesgue, Henri-Léon [lǝ beg´] 1875–1941, French mathematician; noted for the Lebesgue integral.

Lebesgue convergence see FATOU-LEBESGUE THEOREM.

Lebesgue integral *Mathematics.* for an integrand that is a real-valued function of a real variable, an integral defined by partitioning the range of the integrand function and summing up the corresponding areas below the graph of the function. It differs from the Riemann integral, which proceeds by partitioning the domain of the integrand. The Lebesgue integral exists for measurable integrands, whereas the Riemann integral exists only for integrands that are continuous except on a set of measure zero.

Lebesgue measure *Mathematics.* the Lebesgue measure on Euclidean R^n is the measure that arises by taking as the measure of a parallelepiped the usual definition of volume (the n-fold product of the lengths of the edges). Lebesgue measure is defined from Borel measure by a process called extension. The sigma algebra of Lebesgue measurable sets is larger than the sigma algebra of Borel sets.

Lebesgue number *Mathematics.* let X be a compact metric space with an open cover. The Lebesgue number of the cover is the positive real number λ such that any subset of X of diameter less than λ is completely contained in a member of the cover.

Lebesgue-Stieltjes integral *Mathematics.* an integral with the form $\int_g f(x) dg(x)$, where g is a nondecreasing left-continuous real-valued function that coincides with the Riemann-Stieltjes integral for continuous integrands f, but which also exists for measurable integrands f.

Leboyer method [lǝ boi yā´] *Medicine.* a theory of delivery focusing on the elimination of stress and birth trauma to the infant. It emphasizes a gentle, controlled delivery in a quiet, dimly lit room; careful and gentle handling of the infant, with no unnecessary intervention in the delivery or artificial stimulation of breathing; and immediate bonding between the mother and the child. (Formulated by the French obstetrician Frederick Leboyer.)

Lecanicaphaloidea *Invertebrate Zoology.* an order of tapeworms in the subclass Cestoda that parasitize rays and sharks.

Lecanidiales *Mycology.* in some classifications, an order of fungi of the subdivision Ascomycotina living nonparasitically on leaves or bark.

lecanora *Botany.* the type genus of the family Lecanoraceae, crustaceous lichens having an apothecia in which the disk is surrounded by a pale margin; sometimes used to make dyes or for food.

Lecanoraceae *Botany.* a family of lichens of the order Lecanorales, having a thin thallus that is crustaceous or squamulose and mostly superficial apothecia with a distinct rim.

Lecanorales *Botany.* an order of lichens of the class Ascolichenes having discoid, marginate apothecia and a thalline layer affording a protecting amphithecium.

Le Châtelier, Henri [lǝ shat´ǝl yā´] 1850–1936, French chemist; worked in high-temperature chemistry; formulated Le Châtelier's principle.

lechatelierite *Mineralogy.* SiO_2, a natural fused silica or silica glass formed by melting quartz sand at high temperatures generated by lightning strikes and meteoric impacts; found as fulgurites, irregular tubes of sand fused by lightning, and at Meteor Crater, Arizona. (Named for Henri *Le Châtelier*.)

Le Châtelier's principle *Physics.* a principle stating that if a system in equilibrium is disturbed by some external influence, the system will react in such a way as to alleviate the disturbance.

lecher wires [lek´ǝr] *Electromagnetism.* two long, insulated, parallel wires separated by a short distance that are made to resonate by sliding a shorting bar over the wires, forming a microwave electromagnetic transmission line that may be used as a tuned circuit, as an impedance matching device, or to measure wavelengths. (Named for the Austrian physicist E. *Lecher*.)

Lecideaceae *Botany.* a family of crustaceous lichens of the order Lecanorales having no thalloid rim surrounding the apothecia, which can be soft or carbonaceous.

lecithin *Biochemistry.* a phosphoglyceride that is the major component of cell membranes, consisting of esters of glycerol with two molecules of long-chain aliphatic acids and one of phosphoric acid.

lecithinase *Enzymology.* an enzyme that hydrolyzes lecithin at different positions.

lecithinase A *Enzymology.* phospholipase A1 and phospholipase A2, enzymes that remove fatty acids from lecithin.

lecithinase C *Enzymology.* phospholipase C, an enzyme that hydrolyzes lecithin to produce a diglyceride and a phospho-compound.

lecithinase D *Enzymology.* phospholipase D, an enzyme that hydrolyzes lecithin to produce phosphatidic acid and an organic compound.

Lecithoepithelata *Invertebrate Zoology.* in some classifications, an order of neophoran platyhelminth turbellarians having both marine and freshwater species.

Leclanche cell see DRY CELL.

lecontite *Mineralogy.* $(NH_4,K)Na(SO_4) \cdot 2H_2O$, a colorless, orthorhombic mineral having a specific gravity of 1.745 and a hardness of 2 to 2.5 on the Mohs scale; found as prismatic crystals and granular masses in bat guano.

Le Courbusier [lǝ kŏr´byoo zyāy´] the professional name of Charles Edmond Jeanneret, 1887–1965, Swiss architect.

lectin *Biochemistry.* any of a large group of hemagglutinating proteins found principally in plant seeds. Certain lectins cause agglutination of erythrocytes of certain blood groups; others stimulate the proliferation of lymphocytes.

lectotype *Systematics.* a specimen selected from the type series by a subsequent author to be the holotype because the original author did not designate one.

Lecythidaceae *Botany.* a family of tropical trees of the order Lecythidales, characterized by simple, alternate leaves without stipules and solitary, bisexual flowers in spikes and racemes.

Lecythidales *Botany.* an order of tropical dicotyledonous trees of the subclass Dilleniidae, characterized by entire leaves, separate petals, valvate sepals, centrifugal stamens, and a syncarpous, inferior ovary.